UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB2000-0174

August 3, 2000

Mr. Lawrence C. Evans
U.S. Army Corps of Engineers
Portland District, CENWP-CO-GP
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Formal Section 7 Consultation on the Georgia-Pacific Effluent Pipeline Replacement (Phase 1), Lincoln County, Oregon (Corps No. 2000-00397)

Dear Mr. Evans:

Enclosed is a biological opinion prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the Georgia-Pacific Effluent Pipeline Replacement Project (Phase 1) near Toledo, Oregon. The NMFS concludes in this biological opinion that the proposed action is not likely to jeopardize the subject species or destroy or adversely modify critical habitat. Pursuant to section 7 of the ESA, NMFS has included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

Questions regarding this letter should be directed to Rob Markle of my staff in the Oregon State Branch Office at (503) 230-5419.

Sincerely,

for William Stelle, Jr.
Regional Administrator

Endangered Species Act

Section 7 Consultation

Biological Opinion

Georgia-Pacific Effluent Pipeline Replacement (Phase 1), Corps No. 2000-00397,
Lincoln County, Oregon

Agency: U.S. Army Corps of Engineers, Portland District

Consultation Conducted by: National Marine Fisheries Service,
Northwest Region

Date Issued: August 3, 2000

Refer to: OSB2000-0174

TABLE OF CONTENTS

I. BACKGROUND

In a letter dated June 7, 2000, the U.S. Army Corps of Engineers (COE) requested informal consultation on the Georgia-Pacific Effluent Pipeline Replacement (Phase 1) (the proposed project), the first construction stage of a multi-phased pipeline replacement action within the Beaver Creek drainage of the Yaquina River. NMFS received the request for consultation and a biological assessment describing the proposed action on June 9, 2000. Georgia-Pacific West, Inc. (G-P, or the applicant) has applied for the subject permit. The project was designed by URS Corporation. Kerr Contractors Incorporated (the project contractor) has been retained to construct the project. The pipeline runs adjacent to State Highway 20 within the Oregon Department of Transportation right of way.

After reviewing the biological assessment and supporting documents, the NMFS does not concur with the action agency's determination of effect. This biological opinion (Opinion) was prepared in response. This Opinion considers the potential effects of the proposed action on Oregon Coast coho salmon (*Oncorhynchus kisutch),* which occur in the proposed project area. Oregon Coast coho salmon were listed as threatened under the Endangered Species Act (the ESA) on August 10, 1998 (63 FR 24998), and a critical habitat was designated on February 16, 2000 (65 FR 7764). The NMFS concludes that the proposed action is not likely to jeopardize the subject species, or destroy or adversely modify designated critical habitat. Included in this Opinion is an incidental take statement with terms and conditions to minimize the take of the subject species. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

II. PROPOSED ACTION

The proposed action is issuance of a permit under section 404 of the Clean Water Act for the first phase of the Georgia-Pacific Effluent Pipeline Replacement Project, Lincoln County, Oregon. G-P currently has an effluent pipeline system that conveys waste water used during processing at the Toledo Pulp and Paper Mill to an ocean outfall off Nye Beach in Newport, Oregon. Discharge of effluent occurs 3,300 feet beyond the surf-zone via diffusers in 50 feet of water.
External and internal corrosion has compromised the integrity of the pipeline. In recent years, the approximately 40-year-old pipeline has been experiencing increased reports of leaks. Eight leaks have been recorded in the past three years. Including at least one discharge into Beaver Creek (Bryson Twidwell, Oregon Department of Environmental Quality, personal communication, 21 July 2000). This action is being undertaken as a proactive response to prevent catastrophic failure during a period that may result in significant environmental damage to aquatic resources.

The 8.2-mile effluent line is actually composed of two parallel concrete pipelines. The proposed action will combine the flow of both lines into one during most of the year. The pipeline replacement is planned to occur in three separate phases. Phase 1 will replace the 11,510 feet section of pipe from the Christensen valve station to the Fruitvale valve station (proposed for Summer 2000). Phase 2 will replace the pipeline between the Toledo mill and the Christensen valve station (proposed for Summer 2001). Phase 3 will replace the pipeline between the Fruitvale valve station and the booster pump station (proposed for Summer 2002). This consultation is limited to the proposed Phase 1 action only. The remaining phases are to be consulted upon following completion of design, establishment of alignment, and determination of construction methods.

The proposed Phase 1 action will replace an 18-inch diameter concrete pipeline constructed in 1959 with a 24-inch diameter concrete pipeline. Due to the high temperature of the effluent, the use of cement pipe is required (Ric Cowlishaw, Georgia-Pacific, personal communication, 22 June 2000). Cut and cover construction methods will be used to install the proposed pipeline. All vegetation along the 2.2 mile length of the pipeline to be replaced will be cleared to a width of 20 to 25 feet. Heavy equipment such as backhoes or small cranes will be used to excavate and remove the existing pipe and install the new sections. The excavated cut to access the pipeline will be a minimum width of 3.5 feet to an estimated depth of six feet. Top soils removed from wetland areas will be stored and replaced back in the wetlands after construction activities are completed. Prior to pipe section removal, the pipeline will be flushed with freshwater until the residual discharge effluent is tested as clean per Oregon Department of Environmental Quality water quality criteria. Any disturbed soils will be hydroseeded with native seed mixes to stabilize the soil. Removed woody vegetation will be replaced at a 2:1 ratio with native trees and shrubs. The removed pipe sections and excess excavated materials will be hauled off-site and disposed of at the G-P solid waste site.

A wetland delineation report identified approximately 2,489 feet (0.2 acres) of the pipeline as falling within wetland or water body areas. The pipeline crosses Beaver Creek at three locations and runs adjacent to the creek along much of its length. Three unnamed tributaries to Beaver Creek will be crossed by the pipeline. The westward end of the proposed action runs adjacent to the south bank of Jack Creek. All in-stream work activities are proposed to occur during the Oregon Department of Fish and Wildlife (ODFW) recommended in-water work period (July 1 to September 15).

During construction activities, actively flowing in-stream work sites will be isolated and downstream flows maintained. Prior to isolation, the work site will be seined to remove any fish present in the reach. Steel-plate barriers will be placed upstream and downstream of the crossing. The work site will be de-watered by pumping water out of the 20-foot stream section between the steel plates. Discharge of pumped water will occur in an upland area allowing over ground return to the creek. Stream flow will be maintained by pumping water from upstream of the work site below the work site. Pump intakes will be screened to prevent entrainment and/or

injury of fish. Following excavation, removal, and replacement of the pipe sections crossing the creek, streambed materials will be replaced to a minimum depth of 2 feet and flow barriers removed.

The un-named creek located in Segment 8 is contained within a culvert that conveys stream flows beneath Highway 20. The effluent pipeline crosses over the culvert and will not require any stream channel disturbance. However, the two un-named tributaries crossed in Segment 7 will be crossed by open trenching. These are ephemeral systems and trenching is expected to occur during periods when the streams are dry. Streambed materials will be replaced following disturbance.

Running parallel, but not immediately adjacent to this pipeline is the second effluent line, a 21-inch concrete pipeline completed in 1963. Once the 18-inch line has been replaced, the 21-inch line will be shutdown and all effluent will be conveyed via the new pipeline. The 21-inch line will remain for use as a back-up means of transporting effluent, primarily during high-precipitation periods.

The mill can maintain operation for up to 30 days using treatment ponds for holding effluent and discharging through the 21-inch effluent pipeline. Completion of Phase 1 construction is estimated to take no more than 30 days. Because of the cut and cover construction methodology being used, at any time the new pipeline can be mated to the existing line within 24 hours (Ric Cowlishaw, Georgia-Pacific, personal communication, 22 June 2000). This allows the flexibility of discontinuing the project at any point in construction, if necessary.

The proposed project includes the following set of best management practices (BMPs) designed to reduce adverse environmental impacts. These BMPs will be followed on all pipeline replacement activities and will be provided to the project contractor. The NMFS regard these BMPs as integral components of the pipeline replacement and consider them to be part of the proposed action.

1. All work will occur during the ODFW recommended in-water work window of July 1-September 15, which will minimize the presence of migrating and spawning Oregon Coast coho salmon at the project site and allow work to occur during the dry season.

2. Removal of woody vegetation will be mitigated at a replanting ratio of 2 to 1, based on plant numbers. Conifers removed within 150 feet of a waterway will be replanted in kind.

3. Trench excavation occurring within stream channels will be isolated from flowing water to reduce sediment transport and minimize impacts to fish.

4. Rearing juvenile coho will be seined from the work area prior to installation of coffer dams to avoid entrapment.
5. Downstream flows will be maintained at all times during the project.

6. Pump intakes will be screened to prevent entrainment of fish.

7. Equipment will work from above the banks of the channel.

8. Open-trench stream crossings will be de-watered for a period not to exceed one day at each crossing.

9. Vegetation removal will be limited to a 20 to 25-foot wide corridor.

10. Multi-species vegetation replanting of disturbed and deficient areas within 150 feet of the waterway will occur.

11. Potential effects from chemical contamination will be minimized or possibly eliminated as all refueling and servicing will not occur near any water bodies and equipment will be free of leaks and contaminants.

12. Prior to removing effluent pipeline sections, the pipeline will be flushed until effluent meets water quality criteria developed for the project by the Oregon Department of Environmental Quality.

13. Adherence to additional BMPs designed by the COE and State of Oregon to prevent the release of sediments and/or hazardous materials are also required.

III. BIOLOGICAL INFORMATION AND CRITICAL HABITAT

Although there are currently limited data to assess population numbers or trends, NMFS believes that all coho salmon stocks comprising the Oregon Coast coho salmon ESU are depressed relative to past abundance. The status and relevant biological information concerning Oregon Coast coho salmon are well described in the proposed and final rules from the Federal Register (July 25, 1995, 60 FR 38011; and May 6, 1997, 62 FR 24588, respectively), and Weitkamp *et al.* (1995).

Abundance of wild coho salmon spawners in Oregon coastal streams declined during the period from about 1965 to roughly 1975 and has fluctuated at a low level since that time (Nickelson *et al*. 1992). Spawning escapements for this ESU may be at less than 5% of abundance from that in the early 1900s. Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson *et al*. 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining. The Oregon Coast coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al*. 1995).

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for freshets before entering rivers. In the Yaquina River watershed (including Beaver Creek), adults return between mid-October through mid-January (T. Wagner, ODFW, personal communication, 27 June 2000) with peak river entry usually occurring in October when the fall rains return (Weitkamp *et al*. 1995). Oregon Coast coho salmon spawn in the Yaquina River basin between early-November and early-January with peak spawning occurring in late-November (Weitkamp *et al*. 1995). Juvenile coho salmon rear for one year in fresh water before migrating to the ocean. Juvenile Oregon Coast coho salmon migrate out of the Yaquina River basin as smolts between late-March and late-May (T. Wagner, ODFW, personal communication, 27 June 2000).

The proposed action will occur in designated critical habitat for Oregon Coast coho salmon. Critical habitat for Oregon Coast coho salmon includes Oregon coastal river basins (freshwater and estuarine

areas) between Cape Blanco and the Columbia River. Freshwater critical habitat includes all waterways, substrates, and adjacent riparian areas—areas adjacent to a stream that provides the following functions: shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody material or organic matter—below longstanding, natural impassable barriers (i.e., natural waterfalls in existence for at least several hundred years) and several dams that block access to former coho salmon habitats. For the purposes of this consultation, the adjacent riparian zone has been defined as the distance equal to the height of one site-potential tree, or 150 feet slope distance.

IV. EVALUATING PROPOSED ACTIONS

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, the NMFS uses the following steps: 1) Consider the status and biological requirements of the species; 2) evaluate the relevance of the environmental baseline in the action area to the species' current status; 3) determine the effects of the proposed or continuing action on the species; 4) consider cumulative effects; and 5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or adversely modify its critical habitat. In completing this step of the analysis, NMFS determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the continued existence of the listed species or result in destruction, adversely modify their critical habitat, or both. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

A. Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmon is to define the biological requirements of the species most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list Oregon Coast coho salmon under the ESA and also considers new data available that are relevant to the determination (Weitkamp *et al.* 1995).

The relevant biological requirements are those necessary for Oregon Coast coho salmon to survive and recover to naturally reproducing population levels at which protection under the ESA will become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are habitat characteristics that function to support successful spawning, rearing, and migration. The current status of the Oregon Coast coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened.

B. Environmental Baseline

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). Direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. For this consultation, the action area includes the affected streambed, bankline, adjacent riparian zone, and aquatic areas that may be affected by increased turbidity during construction in the Beaver Creek watershed from the Jack Creek confluence (approximately river-mile [RM] 5) downstream to Yaquina Bay, including any affected tributaries.

The bulk of production for the Oregon Coast coho salmon ESU is skewed to its southern portion where the coastal lake systems (e.g. Tenmile, Tahkenitch, and Siltcoos Basins) and the Coos and Coquille Rivers are more productive. The proposed action area is located in the northern half of the ESU where production is more depressed and habitats in the action area are under seeded. Oregon Coast coho salmon spawn in Beaver Creek, and likely Jack Creek, upstream of the action area and utilize the stream for rearing.

Beaver Creek originates in the coastal mountains approximately 4.5 miles east of Yaquina Head in the vicinity of the community of Fruitvale (T 10 S, R 11 W). The creek flows approximately 10 miles to the Yaquina River via Depot Slough. The Depot Slough/Yaquina Slough confluence is located at RM 9 of the Yaquina River at the town of Toledo. The Yaquina River is tidally influenced up to the Toledo reach. Winters are typified as mild and wet, while summers are cool and relatively dry.

Beaver Creek does not appear on the Oregon Department of Environmental Quality 303(d) List of Water Quality Limited Water Bodies. However, Depot Slough and the Yaquina River from RM 5 to Mill Creek (RM 12) are listed as exceeding the bacteria criterion, and Yaquina River from Mill Creek to Simpson Creek (upstream of Depot Slough confluence) is listed as temperature limited (summer)(ODEQ 2000).

V. ANALYSIS OF EFFECTS

A. Effects of Proposed Action

The proposed action will disturb riparian and in-stream habitats in the short and long-term through excavation and fill, stockpiling of excavated material, vegetation removal and modification, including large wood, and unintended related activities. This action may introduce sediment, turbidity, and contaminants into water bodies, alter and/or destabilize the beds and banks of water bodies, and may also reduce shade, large woody material (LWM) supply, and other characteristics of riparian vegetation which are critical elements of salmonid habitats. In addition, the project has the potential to enable other activities that may affect Oregon Coast coho salmon or their designated critical habitat.

The parameters that can potentially be affected by the proposed pipeline construction include water quality (temperature, sediment, and chemical contamination), habitat access, and LWM recruitment. Direct impacts related to project activities can occur on juvenile Oregon Coast coho salmon rearing in Beaver Creek and Jack Creek.

Water Quality

a. Temperature

It is not expected that water temperatures will be degraded as a result of pipeline construction. Removal of riparian trees providing direct channel shading will be minimal. Riparian vegetation removal will primarily occur at four locations – the Beaver Creek stream crossings (Segments 4, 6 and 10), and trenching adjacent to Jack Creek in Segment 11. These impacted areas will be replanted predominately with Pacific ninebark (*Physocarpus capitatus*), red-osier dogwood (*Cornus stolonifera*), willow (*Salix* sp.), Oregon ash (*Fraxinus latifolia*), and native grass seed. Functional shading will likely take 6-10 years before development, and will constitute a net improvement over the existing condition. The NMFS does not expect that the removal of 20 to 25 feet of vegetation on each bank will result in an increase of water temperature for Beaver Creek or its associated tributaries.

An additional three streams will be crossed by the project (Segments 7 and 8). At these locations removal of riparian vegetation will occur. All three streams are minor tributaries of Beaver Creek and may exhibit ephemeral flows. Oregon Coast coho salmon presence in these streams is not known, but all directly impact water quality in Beaver Creek. The same restoration methods proposed for the Beaver Creek crossing sites will be applied at these crossings and therefore should not result in any measurable increase of water temperatures.

b. Sediment

The three Beaver Creek sites and, to a lesser extent, the two tributaries crossed by open trenching will experience short-term releases of sediment due to removal of riparian vegetation and construction work in the stream channel. An increase in turbidity can impact fish and filter-feeding macro-invertebrates downstream of the work site. Fine sediment introduced into a water body can cause turbidity. Moreover, excavation may cause sediment already within the channel or bed of a water body to move into the water column and increase turbidity. At moderate levels, turbidity has the potential to adversely affect primary and secondary productivity; at higher levels, turbidity may interfere with feeding and may injure and even kill both juvenile and adult fish (Spence *et al*. 1996). Transportation of sediments to watercourses along the length of the project is also possible. Ground disturbance activities will expose and dislodge soils. Any precipitation during select periods of vulnerability may result in erosion of soils and increases in stream turbidity. Construction work will be stopped during periods of heavy rain.

To minimize the potential for stream turbidity and direct impacts to fish, work will occur during the ODFW recommended in-water work window (July 1 to September 15). During this window, river flows are typically low, fish presence is reduced, and rainfall is minimal. Low flows will allow a majority of the work to occur in the dry, thereby reducing indirect (turbidity) and direct impacts to fish. Fish presence is minimal with rearing juveniles potentially present, but no adult spawning or egg incubation occurring. The low probability of rainfall reduces the likelihood that sediment will be transported into

the river. Based on data provided by the Western Regional Climate Center (2000) for Newport, average rainfall during the anticipated work period (August/September) represents 5.1 percent of the annual with less than a 10 percent probability of receiving 0.5 inches of rainfall on any given day. The precipitation probability increases greatly after September 30, as does the potential presence of returning adult coho salmon.

Furthermore, isolation of the work area from the flowing water and pumping flows around the work isolation area will eliminate most of the potential for sediment release during streambed excavation activities. NMFS expects that the measures described herein will minimize the potential for excessive releases of sediment.

c. Chemical Contamination

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Detrimental affects to fish and other biota found in small freshwater systems may result from exposure to pipeline contents. Effluent temperature and salinity levels are elevated above background levels found in Beaver Creek and its tributaries. Copper levels, as indicated by test results from 29 March 1995, can be acutely toxic to juvenile fish (Bryson Twidwell, Oregon Department of Environmental Quality, personal communication, 21 July 2000). Operation of the back-hoes, excavators, and other equipment requires the use of fuel, lubricants, etc., which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Herbicides used to clear vegetation may be used in riparian areas, where they may enter water bodies. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly cyclic aromatic hydrocarbons (PAHs) which can cause acute toxicity to salmonids at high levels of exposure and can also cause chronic lethal as well as acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, as well as target and non-target riparian vegetation (Spence *et al.* 1996).

To minimize the potential for chemical contamination, 1) equipment will work from above the banks of the channel, 2) staging areas, vehicle refueling, and maintenance areas will be located at upland sites, and 3) BMPs required by the COE and the State of Oregon will further minimize the potential for accidental release of hazardous materials.

Habitat Access

Habitat access to both upstream and downstream areas will be disrupted for short periods of time. Construction methodology will use cut and cover techniques, and will disrupt fish passage during work at the three Beaver Creek crossings. However, it is expected that this activity will not take more than one day at each site, so disruption of normal fish movement will be short-term and is unlikely to significantly impact normal behavior patterns. Furthermore, timing of the construction activities will preclude the presence of Oregon Coast coho salmon adults, seaward migrating juveniles, and incubating eggs and pre-emergent fry.

Large Woody Material Recruitment

A minor loss of LWM recruitment potential will occur where vegetation within 150 feet of the stream channel will be removed. A total of 1,192 woody plants are proposed for removal as part of this action; however, only a small unquantified portion of these represent riparian vegetation. Riparian vegetation removal will primarily impact Segments 4, 6, 7, 8, 10, and 11. As indicated previously, impacted areas will be replanted predominately with Pacific ninebark, red-osier dogwood, willow, and Oregon ash. LWM is expected to become available 40 to 50 years following planting.

Except for the impacted 25-foot corridor where the pipeline will be buried, the riparian area along the affected reach of Beaver Creek and its tributaries will remain intact. Therefore, NMFS does not expect the proposed action to appreciably diminish the potential for large wood recruitment to Beaver Creek system, and should result in a net increase over the existing condition at the three sites involving crossings of Beaver Creek.

Fish Entrapment and Entrainment

At three locations, a 20-foot reach of Beaver Creek will be de-watered to allow for trench excavation and pipeline burial. Prior to the installation of the steel plate barriers and de-watering, a fisheries biologist will use a block net or seine net to move any fish that may be present downstream. This activity will minimize the potential for fish to be entrapped between the steel plate barriers. Furthermore, intakes for pumps used to de-water the work area will be screened to avoid entrainment of fish into the pump. As de-watering is completed, any fish observed trapped within the work area will be netted and released downstream.

B. Effects on Critical Habitat

The NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features of designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. The proposed action area will occur within designated critical habitat for Oregon Coast coho salmon.

Pipeline replacement activities in the area can affect critical habitat. As discussed above, excavation, stockpiling, vegetation manipulation, and construction within the bed of a water body or in its adjacent riparian area may introduce sediment into the water body or suspend sediment already present. Sediment has the potential to degrade salmonid spawning and incubation habitat, and fine redeposited sediments have the potential to adversely affect primary and secondary productivity (Spence *et al*. 1996), and to reduce cover for juvenile salmonids (Bjornn and Reiser 1991). The existing streambed of Beaver Creek is predominately composed of fine particle sized material. While suspended and transported sediments may directly affect fish health and behavior, they are not expected to result in detrimental impacts to any spawning gravels on the site or downstream.

Excavation, stockpiling, vegetation manipulation, and construction within the channel or bed of a water body or in its adjacent riparian area have the potential to change the bottom characteristics (e.g., the substrate or gradient) of the water body and/or to destabilize the banks of water bodies. For example, depending on the substrate composition and the fill type and procedure, the excavation and subsequent filling of a trench in the channel or bank of a stream may make the area of the trench more or less resistant to erosion. If the trench area is less resistant to erosion (through loosening of the substrate or

through the use of fill with smaller substrate particles than were originally present), then high stream flows may have the potential to erode the disturbed substrate, possibly mobilizing sediment or abruptly altering the bottom contours or bank stability of the stream. If the trench area is more resistant to erosion (through compaction of the substrate or through the use of fill with larger substrate particles than were originally present) then high stream flows may have less of a potential to erode the disturbed substrate than the remainder of the stream bed or bank, possibly creating hydraulic control points which can alter fluvial geomorphological processes. The stream crossings of Beaver Creek in project Segments 4 and 6 occur perpendicular to the channel and exacerbation of lateral channel movement is not anticipated. However, lateral migration may be a concern at the stream crossing located in Segment 10. At this site the creek turns south from a course paralleling Highway 20 and crosses beneath it via a bridge. The proposed action will excavate the east bank at a point in the turn where flows are concentrated along that bank. While displacement of disturbed bank materials is possible, the risk is judged minimal considering the narrow impacted area and the low-velocity flow characteristic of Beaver Creek.

The modification of bank and substrate stability caused by the construction of utility lines through water bodies and riparian area can have adverse effects on salmonids because of increased sedimentation (discussed above) and because of potential effects on riparian vegetation (discussed below). Aside from effects on sedimentation and vegetation, bank and substrate stability influence structural elements of in-stream habitats such as pool depth, channel roughness, and bank slope. Because these structural habitat elements are related to key factors in the distribution of water velocity and the amount of overhead cover, changes in the type and structure of the substrate and banks can affect predation risk, energy expenditure, invertebrate production, and feeding efficiency. A particularly adverse potential effect of utility line crossings is their potential to produce hydraulic jumps if a stream channel degrades while the utility line and/or its armoring remains at a fixed elevation. Such an hydraulic jump can impede upstream passage by fish and other organisms and may have substantial influence on fish abundance well upstream of the project site. Concerns of streambed scouring on Beaver Creek and the development of a hydraulic jump are unlikely at the locations of the proposed action. Beaver Creek is a shallow gradient, low velocity stream elevated only slightly above sea level with minimal potential for downcutting.

Vegetation in riparian areas provides soil stability, shade, LWM supply, and food for fish and their prey. In addition, riparian vegetation and LWM can provide low velocity shelter habitat for fish during periods of flooding, while in-stream LWM provides similar habitat at all flow levels, as well as shelter from predators, habitat for prey species, and the sediment storage and channel stability attributes described above (Spence *et al*. 1996). Current riparian vegetation impacted by the proposed action provides minimal shading or LWM recruitment. The proposed re-vegetation plan will significantly enhance the riparian plant community by increasing the woody plant component. Therefore, while a minor reduction in riparian function may occur in the short-term, riparian function is expected to increase over the long-term. Post-project benefits include increases in direct shading, allochthonous material, and eventually LWM.

The discussion above covers the potential direct effects on salmonids of permitting construction of utility lines. In addition to these direct effects, the Federal permitting of the construction of utility lines can sometimes enable other actions to occur; that is, the COE permit will sometimes result in actions that will otherwise not occur. For example, the construction of a sewer pipe under a stream may allow a

break in that pipe to spill raw sewage into the stream. While such a spill would be unplanned, it is nonetheless a potential outcome of the activity that arguably would not occur but for the Federal permitting of the activity. With regard to the proposed action, establishment of a 15-foot *clear zone* paralleling the highway may result in unintended use (i.e., all-terrain vehicle use). Such use may have impacts on critical habitat by destabilizing soils resulting in increased levels of erosion and sedimentation, or other unforeseen effects; however, as they are unplanned, the possible impacts cannot be evaluated in this Opinion.

NMFS recognizes that many of the aspects discussed above do not represent a significant risk for the action proposed herein. Short-term risks are limited, and are not expected to detrimentally affect the long-term condition of critical habitat.

C. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being, or have already been, reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

The NMFS is not aware of any specific future non-Federal activities within the action area that will cause greater impacts to listed species than presently occurs. However, if Phases 2 or 3 of the G-P effluent pipeline replacement do not require Federal permits, these actions may take place as non-Federal activities. The NMFS assumes that future private and state actions will continue at similar intensities as in recent years.

VI. CONCLUSION

After reviewing the current status of Oregon Coast coho salmon, the environmental baseline for the action area, the effects of the proposed Georgia-Pacific Effluent Pipeline Replacement (Phase 1) and the cumulative effects, it is the NMFS biological opinion that the Georgia-Pacific Effluent Pipeline Replacement (Phase 1), as proposed is not likely to jeopardize the continued existence of the Oregon Coast coho salmon, and is not likely to destroy or adversely modify designated critical habitat. This finding is based, in part, on incorporation of BMPs into the proposed project design.

Further, because of these BMPs, the project is not expected to result in a measurable increase in water temperature; the risks of sedimentation, chemical contamination and fish entrapment have been minimized; disruption of habitat access is expected to be limited to periods of approximately one day; and, although LWM recruitment will be reduced in the short term, it will increase over the long term.

VII. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Because high plant survival rate during revegetation efforts is highly dependent on the planting methods used, the NMFS recommends that all plantings should occur under the supervision of a botanist experienced in streambank restoration.

2. All existing trees within 150 feet of the edge of bank should be retained to the greatest extent possible to maximize the benefits of LWM, including recruitment potential.

In order for the NMFS to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the NMFS request notification of the implementation of any conservation recommendations.

VIII. REINITIATION OF CONSULTATION

This concludes formal consultation on the Georgia-Pacific Effluent Pipeline Replacement (Phase 1). As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: 1) The amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; 3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or 4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

IX. REFERENCES

Section 7(a)(2) of the ESA requires biological opinions to be based on the best scientific and commercial data available. This section identifies the data used in developing this Opinion.

Bjornn, T.C., and D.W. Reiser. 1991. *Habitat requirements of salmonids in streams.* Pages 83-138 *in* W.R. Meehan, ed. Influences of forest and rangeland management on salmonid fishes and their habitats. American Fisheries Society Special Publication 19:83-138.

Neff, J.M. 1985. *Polycyclic aromatic hydrocarbons*. *In:* Fundamentals of aquatic toxicology, G.M. Rand and S.R. Petrocelli, pp. 416-454. Hemisphere Publishing, Washington, D.C.

Nickelson, T.E., J.W. Nicholas, A.M. McGie, R.B. Lindsay, D.L. Bottom, R.J. Kaiser, and S.E. Jacobs. 1992. *Status of anadromous salmonids in Oregon coastal basins*. Oregon Department of Fish and Wildlife, Research Development Section and Ocean Salmon Management, 83 pp. Oregon Department of Fish and Wildlife, P.O. Box 59, Portland.

Oregon Department of Environmental Quality (ODEQ). 2000. *Oregon's Final 1998 Water Quality Limited Streams - 303(d) List*. <http://waterquality.deq.state.or.us/WQLData/RecordID98.asp?recordidreq=2972>. Accessed on June 26, 2000.

Spence, B.C., G.A. Lomnicky, R.M. Hughes, and R.P. Novitzki. 1996. *An Ecosystem Approach to Salmonid Conservation*. TR-4501-96-6057. ManTech Environmental Research Services Corp., Corvallis, Oregon. (Available from the National Marine Fisheries Service, Portland, Oregon). 356 pp.

Weitkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S. aples. 1995. *Status review of coho salmon from Washington, Oregon, and California*. National Marine Fisheries Service, Northwest Fisheries Science Center, Seattle, Washington.

Western Regional Climate Center (WRCC). 2000. *Newport, Oregon (356032): Monthly Total Precipitation*. URL <http://www.wrcc.dri.edu/cgi-bin/cliMONtpre.pl?ornewp>. Accessed July 14, 2000.

X. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered species and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by the NMFS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering. Harass is defined by the NMFS as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the term and conditions of this Incidental Take Statement.

A. Amount or Extent of Take

The NMFS anticipates that certain site-specific actions associated with the open trench crossing of waterways and disturbance of riparian vegetation called for by the proposed action have more than a negligible likelihood of incidental take of Oregon Coast coho salmon. Designated critical habitat for Oregon Coast coho salmon may be adversely affected by project completion, but the negative effects are expected to be short-term. The potential for take has been substantially reduced through the application of the BMPs. Therefore, even though the NMFS expects some low level of incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as this, the NMFS designates the expected level of take as unquantifiable. Based on the information provided, NMFS anticipates that an unquantifiable but low level of incidental take can occur as a result of the action covered by this Opinion. In the accompanying Opinion, the NMFS determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

B. Reasonable and Prudent Measures

The measures described below are non-discretionary, and must be undertaken by the COE so that they become binding conditions of any grant or permit issued to the Georgia Pacific West, Inc., as appropriate, for the exemption on section 7(o)(2) to apply. The COE has a continuing duty to regulate the activity covered by this incidental take statement. If the COE: 1) Fails to assume and implement the terms and conditions; or 2) fails to require the Georgia-Pacific West, Inc. to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. Activities that are not carried out consistent with the BMPs listed in the Opinion (Section II - Proposed Action), or reasonable and prudent measures presented below will require further consultation. In order to monitor the impact of incidental take, the COE shall report the progress of the action and its impact on the species to the NMFS as specified in the incidental take statement 50 CFR 402.14(i)(3).

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of Oregon Coast coho salmon from completion of the Georgia-Pacific Effluent Pipeline Replacement (Phase 1).

The COE shall:

1. Minimize the likelihood of incidental take from construction activities in or near watercourses by implementing pollution and erosion control measures.

2. Minimize the likelihood of incidental take associated with impacts to riparian and in-stream habitats by avoiding or replacing lost riparian and in-stream functions.

3. Minimize the likelihood of incidental take associated with in-stream work by restricting work to recommended in-water work periods.

4. Monitor the effectiveness of the proposed conservation measures in minimizing incidental take and report annually to NMFS.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the COE must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To Implement Reasonable and Prudent Measure #1, above, the COE shall:

    a. Ensure that construction activities meet or exceed all requirements of the Oregon Department of Environmental Quality for the National Pollutant Discharge Elimination System (NPDES) 1200-CA permit.

    b. Develop a Pollution Control Plan (PCP) to prevent point-source pollution related to construction operations that satisfies all pertinent requirements of Federal, State and Local laws and regulations, and the requirements of these conservation measures. The PCP will include the following:

        i. A description of methods to be used to prevent erosion and sedimentation that covers sites, borrow pit operations, haul roads, equipment storage sites, fueling operations and staging areas;

        ii. methods for confining and removing and disposing of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities;

        iii. a description of the hazardous products or materials that will be used, including inventorying, storage, handling, and monitoring; and

        iv. a spill containment and control plan with notification procedures; specific clean up and disposal instructions for different products; quick response containment

and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.

c. An oil absorbing, floating boom will be available on-site during all phases of construction.

d. Daily examinations of vehicles operated within 150 feet of the two-year floodplain for fluid leaks.

e. Vehicle staging, maintenance, refueling, and fuel storage areas, will be at least 150 feet from the 2-year flood elevation.

f. At the end of each work shift, vehicles will be stored no less than 150 feet (horizontal distance) from the two-year flood elevation.

g. No pollutants of any kind (i.e., petroleum products) will come in contact with the area below the ordinary high water (two-year flood elevation).

h. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

i. No herbicide application will occur within 150 feet of any stream channel as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.

j. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work exceeding 7 days.

k. Exposed soil surfaces will be permanently stabilized at finished grade with native grass seeding and mulch prior to October 1, 2000.

l. A supply of erosion control materials (e.g., silt fence and straw bales) will be kept on hand to respond to sediment emergencies.

2. To implement Reasonable and Prudent Measure #2, above, the COE shall:

a. Material removed during excavation will only be placed in locations where it cannot enter sensitive aquatic resources. Whenever topsoil is removed, it will be stored and reused.

b. A *clear-zone* not to exceed 15 feet wide will be permitted the length of the pipeline corridor.

c. Alteration or disturbance of the stream banks and existing riparian vegetation will be minimized to the greatest extent possible.

d. Replantings will be of native species only and replicate or enhance existing riparian function.

e. Plantings will be arranged randomly within the replanting area defined in the plans.

f. All plantings will occur prior to April 15, 2001. No plantings will take place outside this period without prior written authorization from the COE, in consultation with ODFW and NMFS.

g. Plantings will achieve an 80 percent survival success after three years.

3. To implement Reasonable and Prudent Measure #3, above, the COE shall:

a. Notify Tami Wagner, Oregon Department of Fish and Wildlife, a minimum of 3 work days prior to commencing any work associated with stream crossings.

b. All water pump intakes will be screened in accordance to NMFS' Juvenile Fish Screen Criteria (February 16, 1995), as amended (May 9, 1996). Documents available at http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm. Contact NMFS if clarification of criteria is required.

c. Sandbags will be placed at the pump outfall for erosion control.

d. Water pumped from the work isolation area will be discharged in an upland area providing over-ground flow prior to returning to the creek. Discharge will occur in such a manner as not to cause erosion.

4. To Implement Reasonable and Prudent Measure #4, above, the COE shall:

a. Provide NMFS with a report describing the success of conservation measures. This report will include work isolation and revegetation components, and will submitted as outlined below.

b. *Work Isolation*. The report on the work isolation component of monitoring will be provided by December 31, 2000, and include a description of:

i. Specific methods used to isolate the work area;

ii. stream conditions prior to and following placement and removal of barriers;

iii. the number and species of fish removed from the isolated area prior to dewatering; and

iv. any mortality of fish resulting from project activities.

c. *Revegetation*. This component of the monitoring report, including photo documentation, will be provided by December 31, 2003, and focus on actions taken to ensure that planting were done correctly and success at meeting the objective of 80 percent or higher survival rate after three years;

d. Monitoring reports will be submitted to:

Oregon Branch Chief
National Marine Fisheries Service
525 NE Oregon Street, #500
Portland, Oregon 97232-2737

Oregon Department of Fish and Game
Attn: Tami Wagner
2040 SE Marine Science Dr
Newport, Oregon 97365

e. If a dead, sick or injured Oregon Coast coho salmon is located, immediate notification must be made to Rob Markle, NMFS, telephone: (503) 230-5419, or Tami Wagner, ODFW, telephone: (541) 867-0300 extension 255. Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured species or preservation of biological material from a dead animal, the finder has the responsibility to carry out instruction provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.